

# Notice of Allowability

Application No.

09/998,002

Examiner

L. G. Lauchman

Applicant(s)

SLUTTER ET AL.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/03/11 and an Interview on 5/6/2011.
2. ☒ The allowed claim(s) is/are 1-83,106-120 and 125-128.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20110526</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____  |

### EXAMINER'S AMENDMENT

The application has been amended as follows:

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Bir on May 26, 2011.

In the final listing of Claims, submitted on 2/02/2011 the following has been changed according to the Certificate of Correction of the US Pat. 5,995,221:

In Claim 46, line 13, the word "diffraction" has been replaced with --diffracted--.

In Claim 68, line 6, the wording "being subal" has been replaced with --said optical--.

### *Allowable Subject Matter*

Claims 1-83, 106-120, 125-128 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 1-83 are original claims from the US Patent 5,995,221.

As to Claim 1, the prior art of record taken alone or in combination, fails to disclose or render obvious a primary entrance port being located substantially out of said meridian plane toward said first side; and a primary exit port being located substantially out of said meridian plane toward said second side for receiving an order of light that

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maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 15, the prior art of record taken alone or in combination, fails to disclose or render obvious a primary entrance port near said primary focal plane at an intersection between a first axis and a second axis, wherein said first axis is parallel to, and offset in a first direction from, said meridian plane and said second axis is perpendicular to said meridian plane and offset from said optical axis; and a primary exit port near said primary focal plane located at a second perpendicular distance from said meridian plane, in a second direction opposite said first direction for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 46, the prior art of record taken alone or in combination, fails to disclose or render obvious an entrance port near said focal plane for permitting light to enter said spectrograph along an optical path, said entrance port being substantially located at a distance from said meridian plane in a first direction, said lens directing said light from said entrance port toward said meridian plane and said grating surface for diffraction; and an exit port located near said focal plane for permitting a portion of said light to exit said spectrograph after said light is diffracted by said grating, said lens imaging said portion of said light at said exit port for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 58, the prior art of record taken alone or in combination, fails to disclose or render obvious a secondary entrance port near said primary focal plane at an

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intersection between a first secondary axis and a second secondary axis, wherein said first secondary axis is parallel to and offset from said meridian plane and said second secondary axis is perpendicular to said meridian plane and offset from said grating optical axis; and a secondary exit port near said primary focal plane located at a second perpendicular distance from said meridian plane in said second direction, in combination with the rest of the limitations of the claim.

As to Claim 64, the prior art of record taken alone or in combination, fails to disclose or render obvious a primary entrance port near said modified focal plane at an intersection between a first axis and a second axis, wherein said first axis is parallel to and offset in a first direction from said meridian plane and said second axis is perpendicular to said meridian plane; and a primary exit port near said primary focal plane located at a first perpendicular distance from said meridian plane, said first perpendicular distance being in a second direction opposite said first direction for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 66, the prior art of record taken alone or in combination, fails to disclose or render obvious directing said polychromatic light with a lens toward said grating so that said light is incident on said grating at least at said meridian plane; diffracting said light with said diffraction grating, thereby dispersing said light; and imaging said dispersed light with said lens at an exit port located substantially on a second side of said meridian plane for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

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As to Claim 67, the prior art of record taken alone or in combination, fails to disclose or render obvious imaging said first diffracted beam with said lens at said primary exit port; and diffracting a second light beam comprising: providing said second beam at said secondary entrance port, directing said second beam with said lens toward said grating so that at least a portion of said second beam is incident on said grating surface, reflectively diffracting said second beam with said grating to form a second diffracted beam, and imaging said second diffracted beam with said lens at said secondary exit port, in combination with the rest of the limitations of the claim.

As to Claim 68, the prior art of record taken alone or in combination, fails to disclose or render obvious diffracting a first light beam comprising: providing said first beam at said primary entrance port, directing said first beam with said lens toward said grating so that at least a portion of said first beam is incident on said grating surface, reflectively diffracting said first beam with said grating to form a first diffracted beam, and imaging said first diffracted beam with said lens at said primary exit port; and diffracting a second light beam comprising: providing said second beam at said secondary entrance port, directing said second beam with said lens toward said grating so that at least a portion of said second beam is incident on said grating surface, reflectively diffracting said second beam with said grating to form a second diffracted beam, and imaging said second diffracted beam with said lens at said secondary exit port, in combination with the rest of the limitations of the claim.

As to Claim 69, the prior art of record taken alone or in combination, fails to disclose or render obvious a first body comprising an optically transmissive material, said transmissive material having an index of refraction, said first body having at least three

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planar surfaces, wherein any pair of said first body planar surfaces intersect to form a respective line of intersection, each respective line of intersection being substantially parallel to the other lines, a first of said first body planar surfaces being at least partially located between said first port and said lens and having a reflective surface disposed on said first plane forming a modified focal plane, a second of said first body planar surfaces facing said planar surface of said lens, and a third of said first body planar surfaces facing said modified focal plane; and a second port facing said planar surface of said lens and being located near said primary focal plane for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 106, the prior art of record taken alone or in combination, fails to disclose or render obvious (b) retracting the first light beam with the lens to diverge the beam toward the grating; (c) reflectively diffracting the first light beam at the grating to form a first diffracted beam; (d) imaging the first diffracted light beam with the lens at the primary exit port; (e) providing a second polychromatic light beam to the secondary entrance port; (f) refracting the second light beam with the lens to diverge the beam toward the grating; reflectively diffracting the second light beam at the grating to form a second diffracted beam, in combination with the rest of the limitations of the claim.

As to Claim 111, the prior art of record taken alone or in combination, fails to disclose or render obvious a primary entrance port being located substantially out of said meridian plane toward said first side; and a primary exit port being located substantially out of said meridian plane toward said second side for receiving an order of light that

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tends to maximize throughput and minimize astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 112, the prior art of record taken alone or in combination, fails to disclose or render obvious a primary entrance port near said primary focal plane at an intersection between a first axis and a second axis, wherein said first axis is parallel to, and offset in a first direction from, said meridian plane and said second axis is perpendicular to said meridian plane and offset from said optical axis; and a primary exit port near said primary focal plane located at a second perpendicular distance from said meridian plane, in a second direction opposite said first direction for receiving an order of light that maximizes throughput and minimizes astigmatism, in combination with the rest of the limitations of the claim.

As to Claim 117, the prior art of record taken alone or in combination, fails to disclose or render obvious a secondary entrance port near said primary focal plane at an intersection between a first secondary axis and a second secondary axis, wherein said first secondary axis is parallel to and offset from said meridian plane and said second secondary axis is perpendicular to said meridian plane and offset from said grating optical axis; and a secondary exit port near said primary focal plane located at a second perpendicular distance from said meridian plane in said second direction, in combination with the rest of the limitations of the claim.

As to Claim 125, the prior art of record taken alone or in combination, fails to disclose or render obvious an entrance port positioned to introduce incident polychromatic light to the relatively planar lens surface at a location on said relatively planar lens surface on one side of said meridian plane; and an exit port located to receive

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diffracted light emerging from said lens planar surface at a location on the other side of the meridian plane from the incident polychromatic light, said entrance and exit ports being positioned relative to said lens convex surface and said grating concave surface to reflect light which is reflected by said lens convex surface towards said grating concave surface for reflection generally towards said lens convex surface to follow a path which avoids said exit port,, in combination with the rest of the limitations of the claim.

As to Claim 128, the prior art of record taken alone or in combination, fails to disclose or render obvious an entrance port positioned to introduce incident polychromatic light to the relatively planar lens surface at a location on said-relatively planar lens surface on one side of said meridian plane; and an exit port located to receive a non-zero order of diffracted light emerging from said lens planar surface at a location on the other side of the meridian plane from the incident polychromatic light, and, overall, to tend to maximize throughput and tend to minimize astigmatism, in combination with the rest of the limitations of the claim.

The closest prior art reference WO 90/02928 to Lobb fails to teach the entrance port positioned to introduce incident polychromatic light to the relatively planar lens surface at a location on said relatively planar lens surface on one side of the meridian plane, the reference does not teach the exit port located to receive a non-zero order of diffracted light emerging from said lens planar surface at a location on the other side of the meridian plane from the incident polychromatic light.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to L. G. Lauchman whose telephone number is (571) 272-2418. The examiner's normal work schedule is 8:00am to 4:30pm (EST), Monday through Friday. If attempts to reach examiner by the telephone are unsuccessful, the examiner's supervisor Gregory J. Toatley, Jr. can be reached on (571) 272-2059, ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (571) 272-1562.

/L. G. Lauchman/  
Primary Examiner, Art Unit 2877

5/31/2011